

WE CLAIM:

1. A capsule endoscope (CE) having a field of view that may be dynamically adjusted, comprising:
  - an illuminator configured to produce illumination;
  - an optical device configured to transmit the illumination onto a lining of a GI tract;
  - a sensor that is arranged to sense a reflected signal from the lining in response to the illumination and to provide signals relating to the reflected signal; and
  - a control block coupled to the illuminator that is configured to dynamically adjust the field of view of the illumination.
2. The CE of Claim 1, wherein the sensor may be curved to a contour and includes:
  - a support having sufficient flexibility such that it can be formed to the contour;
  - a substrate including the sensor; the substrate being formed sufficiently thin so that it can be shaped to the contour; and
  - the substrate coupled with the support such that the combination can be formed to the contour.
3. The CE of Claim 1, wherein the optical device comprises a scanner configured to scan the illumination onto the lining.
4. The CE of Claim 3, wherein the scanner comprises a MEMS scanner.
5. The CE of Claim 3, wherein the optical device comprises a lenslet array configured to focus the illumination.
6. The CE of Claim 1, wherein the illuminator comprises an optical illuminator.

7. The CE of Claim 1, wherein the illuminator comprises an acoustical illuminator.
8. The CE of Claim 1, further comprising a communication interface that is arranged to transmit and receive signals relating to the lining over a wireless communications link.
9. The CE of Claim 2, wherein the support and substrate are arranged inside a protective housing.
10. The CE of Claim 9, wherein the protective housing includes a portion of an optically transmissive surface.
11. The CE of Claim 10, further comprising a lenslet covering the sensor.
12. The CE of Claim 11, wherein the substrate includes a silicon material.
13. A method for dynamically adjusting a field of view for a CE having sensors that may be formed to follow a contour associated with the CE; comprising:
  - producing illumination;
  - transmitting the illumination onto a lining of a GI tract;
  - sensing a reflected signal from the lining in response to the illumination
  - and providing signals relating to the reflected signal; and
  - dynamically adjusting the field of view.
14. The method of Claim 13, further comprising:
  - forming the sensors; wherein forming the sensors comprises:
    - bulk removing substrate material from the back side of a substrate; and

precision removing substrate material from the back side of the substrate until the substrate has a desired thickness that enables the sensors formed on the substrate to be flexed and shaped into a curved configuration.

15. The method of Claim 13, wherein transmitting the illumination onto the lining of a GI tract further comprise scanning the illumination onto the lining.

16. The method of Claim 15, wherein scanning the illumination further comprises using a MEMS scanner.

17. The method of Claim 16, further comprising focusing the illumination using a lenslet array.

18. The method of Claim 13, wherein producing the illumination further comprises producing the illumination using an optical illuminator.

19. The method of Claim 13, wherein producing the illumination further comprises producing the illumination using an acoustical illuminator.

20. The method of Claim 13, further comprising transmitting and receiving signals relating to the lining over a wireless communications link.

21. The method of Claim 14, further comprising coupling the substrate to a support.

22. The method of Claim 21, wherein the support is selected from a flexible support and a rigid support.

23. A capsule endoscope (CE) having a field of view that may be dynamically adjusted, comprising:  
means for producing an illumination;

means for transmitting the illumination onto a lining of a GI tract;  
means for sensing a reflected signal from the lining in response to the illumination and providing signals relating to the reflected signal; and  
means for dynamically adjusting the field of view.

24. The CE of Claim 23, further comprising means for forming the sensors comprising:

means for bulk removing substrate material from the back side of a substrate; and  
means for precision removing substrate material from the back side of the substrate until the substrate has a desired thickness that enables the sensors formed on the substrate to be flexed and shaped into a curved configuration.